Evolutions tracking

Date	31 May 2023
Reference documentation	V4.13
FLASH4I library version	V04, Build 31/05/2023

1   Use evolutions

Following is the list of new features since V02 of product Flash for i.

1.1   How to know the version currently used

Use the command FLDSPINF to know the current version of the product.
The resulting message gives the version of the product, and the generation date using format yy/mm/dd. Use this generation date to look in the following list, and find what are the evolutions that concern you.

1.2   Restore the new version of Flash for i on IBM i partitions

Upgrade the product version.
Use documentation at section "3.1 Changing the Flash for i version"

1.2.1   If the product is installed in version 1

Upgrade the product Flash for i to version 2 before to upgrade to version 4.
Look at the documentation of Flash for I version 2.

1.2.2   If the product is installed in version 2 or 3

look at section "3.1 Changing the Flash for i version" of reference documentation before to upgrade to version 4.

1.3   Use the new features

You now can fully use the new features of the product.

2 Detail of new features on 31/05/2023

New version of the Documentation: 4.13

2.1 Support for 30 iASPs instead of 18

The maximum number of iASPs that can be specified in the definition of an environment has been increased from 18 to 30, with only 3 displayed as standard. You need to use the F10 key to see all 30 names.

2.2 Improved parallel BRMS backups

It is possible to make parallel backups with BRMS. This function has been improved:
- New messages added in the Flash for i log to indicate that backups are in progress
- The joblog of jobs running the backups in parallel are automatically sent to the production partition.

To take advantage of these improvements, the MASTER control group must be modified to use the FLMULTBRMS command. See section "2.11.9 Parallel BRMS backups".

2.3 New operating document

A new document is available on the web site. It contains the operations to be carried out to check Flash for i.

2.4 Various corrections and improvements

- Improved cleaning of temporary files in the /Flash4i directory
- Quiesce on the 6th iASP was not done correctly.
- Compatibility of Flash for i with DELL EMC VMAX version 10 disk array.
- Removal of the F1 key, which was causing an error on some screens.

3 Detail of new features on 07/03/2023

New version of the Documentation: 4.12

3.1 New FLMAPHOST command, automatic disk mapping

The new FLMAPHOST command allows you to map disks resulting from a FlashCopy or SafeGuarded copy to a host. This allows for example:

- For *SVC definitions, to use a single clone partition for multiple FlashCopy definitions, and to automatically assign one disk group or another to the clone partition
- For *SGC (SafeGuarded Copy) definitions, to start a backup partition using a backup copy that was generated by the FLSTRSGC command.

3.2 Possibility to stop sending messages to the prod after the

backup

A new option in the environment definition (FLWRKENV, last screen) allows to indicate to stop sending messages to the production partition. This can be useful if the clone partition is used for something else after the backups.

3.3 FLENDFC, possible to unlock remote disks if Metro/Global Mirror

If the storage definition (FLWRKSTG) is of type *REMOTE, it is possible to specify whether remote disks should be accessible in order to be mapped to a host, or whether they should remain locked after the metro mirror or global mirror is stopped.

3.4 Starting and stopping FlashCopy or clone partition without environment

It is now possible to use the FLSTRFC, FLSTRLPAR, FLENDFC and FLENDLPAR commands by specifying the name of the storage or partition definition, without setting an environment name.

For the FLSTRFC command, the storage definition must be of type *SVC and *REMOTE.

3.5 The joblog from the clone partition can be RDY or HLD

At the end of the backup on the clone partition, a spool is generated with the joblog of the job that performed the backup. The backup is transferred to production in the HLD (hold) state. It is now possible that the state is RDY (released). Use the FLPARAM command, parameter HLDSPLF.

3.6 Various corrections or improvements

- UNITY disk array, in case of an error from the array, add the message in clear text in the Joblog.
- The FLA0777 message was truncated in case of error with FLENDFC

4 Detail of new features on 10/01/2023

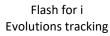New version of the Documentation: 4.11

4.1 New PROXY module

This new module improves security by allowing the infrastructure network to be isolated, and to ensure that production partitions cannot access it.
This new module is particularly designed for hosting companies, and for environments where security is an important issue.
Chapter 12 is dedicated to it.

4.2   FLCHKCTLSB, Added error information to QCTLSBSD

Additional information has been added to the error message if the subsystem FL_CLONE is indicated in the system value QCTLSBSD. This information indicates how to restore the situation.

4.3   Various corrections or improvements

- Saving the contents of SAVFs is forced when saving QUSRBRM

5   Detail of new features on 07/11/2022

New version of the Documentation: 4.10

5.1   New module SafeGuarded Copy

New module to manage the Safeguarded Copies, that allows to generate automatically immutable copies without to use the IBM CSM product (Copy Services Manager).
Look at chapter 11 for details.

5.2   New option to check STG and LPAR configuration

In the screen displayed by FLWRKSTG and FLWRKLPAR, a new option 7 allows to check the configuration (the commands FLCHKSTG and FLCHKLPAR are used).

5.3   FLCHKLPAR, select the HMC to check

If two HMC are defined for a LPAR (using command FLWRKLPAR), it's now possible to select the HMC 1 or 2 to check the connection.

5.4   Various corrections or improvements

-    Command FLVLDLOG added in the menu.

6   Detail of new features on 18/07/2022

New version of the Documentation: 4.08

6.1   New FLVLDLOG command

This new command allows to validate errors in the product log. It gives the possibility to validate errors from a user program without having to use the interactive FLDSPLOG command.

6.2   Support for 128-character passwords

The FLINIT command supports passwords with more than 10 characters

6.3   FLCHKLOG, Adding the list of message IDs to search

The FLCHKLOG command allows you to search for error messages in the Flash for i log. A new parameter allows you to search for one or more specific error message IDs.
If errors are found, the list of errors is shown in the second level of the message.

6.4   Checking BRMS tables

Before restoring the QUSRBRM library to the production partition, Flash for i checks that the BRMS tables have the same format as those from the clone partition. If there is a difference, the QUSRBRM library will not be restored and the error message FLA2271 will be added in the log.

6.5   Adding Production downtime

When the production partition is not available (IPL, restricted mode, ...) while a clone partition tries to send information to it, it generates many error messages.
The new PLANNING parameter (FLPARAM command) allows you to define periods during which clone partitions will not send any information to production, and no errors will be generated.
The new paragraph 2.9.7 explains how this works.

6.6   Time control on the clone partition

On the clone partition, as soon as communication with the production partition is possible, the time of the clone partition is checked and an information message FLA0307 is added in the product log, or the error message FLA0306 if the difference is more than 5 minutes.

6.7   Various corrections or improvements

- Alerts by email was looping if the environment definition had been deleted.
- An error message FLA1229 indicated that the /tmp/brms directory was empty
- There was an error when entering the Exit 4B program
- Added a unit in the performance data of the resulting message of FLCHKLOG
- Fixed a bug in the central management module if the format of a table was changed when upgrading the product
- If the list of saved journal receivers is requested, journals in an iASP are taken into account

7   Detail of new features on 28/01/2022
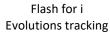
New version of the documentation: 4.07

7.1   New Exit program in environments

In the definition of the environments, a new exit program 4B has been added which is called just after the end of the BRMS backup. Exit program 5 being called after the transfer of QUSRBRM to Production.

7.2   Changing the control of tape library resources

On the clone partition, the product searches for available tape libraries with the same serial number as those present on the Production, to adapt the resource name, and allow the backup to be performed.

When a tape library is visible in several copies, all resources have the same serial number. This causes problems in many cases.
In the new configuration, for a tape library (unit type *TAPMLB), it is recommended to use the same drives (units type *TAP) on the production partition and on the clone partition.

7.3   Compatibility with Novalink

Some infrastructures use Novalink instead of HMC. This new hardware is now supported by Flash for i.

7.4   BRMS, adding a parameter

A new parameter (FLPARAM command, then QUSRBRM) allows to choose the compression rate used when saving the QUSRBRM library

7.5   BRMS, Taking into account the new internal directory

During a backup with BRMS, internal debug information is stored in the /tmp/brms directory. In most recent versions, this directory is replaced by /QIBM/UserData/BRMS/logs

7.6   Reconfiguration, IPL ending with restricted mode

In the definition of a new configuration (FLWRKCFG) it is possible to ask to do an IPL at the end.
The new value *RESTRICT allows to choose between *YES: a normal IPL, or *RESTRICT: an IPL ending with a restricted mode. Only the console is accessible.

7.7   FLCLONE command, adding values to the WAITEND parameter

The WAITEND parameter of the FLCLONE command is used to wait for the backup to be completed on the Clone partition before returning control to the calling program. Additional conditions have been added to return the control when the backup has started for example.

8   Detail of new features on 29/10/2021

New version of the documentation: 4.06

8.1   Compatibility with EMC UNITY disk arrays

The product now supports DELL/EMC Unity disk arrays, with http or https access.

8.2   Remote mirror start/stop capability

On IBM SVC, Storwize or Flash System arrays, starting and stopping the Global mirror and Metro mirror functions is possible using the FLSTRFC and FLENDFC commands.
The consistency group for this remote mirror must be defined with the FLWRKSTG command, indicating the *REMOTE type.

8.3 Names can no longer contain a - sign

It is no longer possible to define names containing the - sign. This was not allowed by the commands.

9 Detail of new features on 14/10/2021

New version of the documentation: 4.05

9.1 Checks in case of communication errors added in documentation

Communication errors between the Clone partition and Production are common when setting up a new Clone partition. Chapter 11.12 has been modified to indicate the procedure to use in this case.

9.2 Adding a delay before the automatic shutdown of the Clone partition or FlashCopy

If the environment has been set to automatically shut down the Clone partition or FlashCopy when the backup is complete (*END_LPAR or *END_FC), a delay has been added to ensure that all operations are complete.

9.3 PureStorage, number of connections optimized

The number of connections to the disk array has been reduced when copying snapshots to clone disks.

9.4 Exit 6 program for a *BRMS21 Env

Fixed a bug related to calling the Exit 6 program in a *BRMS21 environment

9.5 BRMS files locked due to PTFs

Taking into account files locked by SCPF after the application of PTFs concerning BRMS

10 Detail of new features on 09/08/2021

New version of the documentation: 4.04

10.1 BRMS, Parallel backups in a Clone partition

In the documentation, chapter 2.11.9 explains the technique to be used to make parallel backups (on several drives at the same time) with BRMS.

10.2 Various corrections or improvements

- PureStorage arrays, Add target group volume name

- PureStorage arrays, Ability to enter identical source and target disk names if they are in different volume groups
- Receiving files from the Clone partition on Production before calling the Exit 9 program.

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11 Detail of new features on 20/07/2021

New version of the documentation: 4.03

11.1 Quiesce support in *SUSPEND mode

The Quiesce of the memory (CHGASPACT command) can now be done with the *SUSPEND option. This option ensures that there are no more writes to the database at the time of the FlashCopy. On the other hand, active jobs can be frozen for a while.

11.2 FLDSPJRNSA command: Display saved JRNRCVs

The new FLDSPJRNSA command allows you to display the list of journal receivers that have been saved on the Clone partition. This list is only available for environments where the "Extract *JRNRCV info" option is selected.

11.3 FLCHKCTLSB Command: Check QCTLSBSD Value

The new FLCHKCTLSB command is used to check on the Production partition that the name of the control subsystem (system value QCTLSBSD) is correct and not FL_CLONE.
This command is called automatically every hour by the FL_AUTO job.

11.4 Alert module: Possible to send messages in a MSGQ

In the Alert module, it is now possible to send a message to an email or MSGQ when an error occurs, or when a status change occurs.

11.5 Changes concerning BRMS

1/ A new parameter (FLPARAM command) allows to force the saving of access paths during the transfer of QUSRBRM. To be used only if the CPU is overused at the time of the restoration of this library.
2/ New parameter in the definition of the environments allowing to significantly reduce the size of the QUSRBRM library during the transfer of the Clone partition to the Production. WARNING, this option must be used with great care. Consult the documentation.
3/ Important information has been added in the documentation to specify not to apply PTF on BRMS on the Production partition if a backup is in progress on a Clone partition (Chapter 2.11.1).
4/ Addition in the documentation of Chapter 2.11.7 about volume reservation

11.6 Changes concerning the Reconfiguration module

1/ The modification of the NetServer name is now proposed in the reconfiguration module.
2/ It is possible to ask that the new IP address of the partition is added in the hosts table.
3/ The ALWOBJDIF keyword is added to the restore commands for profiles, libraries and directories.

4/ If the *HLDJOBQ option was selected to suspend all JOBQs, the system JOBQs were suspended too. The new CFGJOBQ parameter allows you to select the JOBQs that should not be suspended. The system JOBQs are delivered by default in this list.

12 Version 4. Detail of new features on 18/01/2021

New version of the product: V04
New version of the documentation: 4.01
A new price list comes with version 4 and includes the new available modules.

12.1 New version of the product: V04

General Availability: Monday 18th January 2021

New version of the product: V04
New version of the documentation: 4.01
This version is compatible with IBM I versions V7R1, V7R2, V7R3 and V7R4

A new price list comes with version 4 and includes the new available modules.

look at section "3.1 Changing the Flash for i version" of reference documentation before to upgrade.
If the product is installed in version 1 or 2, it is necessary to upgrade to version 3 before to upgrade to version 4.

History of versions for Flash for i:

Version 1	August 2015
Version 2	September 2016
Version 3	February 2019
Version 4	January 2021

12.2 New license key format

⚠️ **Important note on the license key**
The format of the product license key has changed between version 3 and version 4. The old 15-digit keys are no longer valid.

The new license keys contain 42 digits and include the partition name in their calculation.
This new format allows better management of partition moves when using LPM, and the new modules available.

The different types of license keys are as follows:
- Base
  - A key associated to each source (or Production) partition regardless of the number of clones.
  - If the LPM or HA option has been purchased, only one license key will be provided per server. The partition number is no longer necessary.
- Alerts Module
  - A key associated to each source (or Production) partition.
- Reconfiguration Module
  - A key associated to each source partition, regardless of the number of clones that will be reconfigured.

- Central Management Module
  - o A key for the Primary site. Base key is also mandatory on the Primary site.

12.3 Possible to obtain a temporary key on the website

It is possible to obtain a temporary key in emergency by logging on to www.m81.eu then select Intranet / Key Generator.
A key valid for 4 days will be sent by email. It will then be necessary to make an official request to M81 at support@m81.eu to obtain a permanent key, or a temporary key with a longer delay.
This operation requires a user account and a password to be able to identify oneself.

12.4 New module: Central management

New optional module, requiring an additional activation key.

In cases where Flash for i is installed on a large number of partitions, this new module allows centralized management of the product, without the need to log on to all partitions on a daily basis.

A partition is defined as a "Primary site".
- The FLWRKSIT command is used to define the list of secondary sites.
- All definitions (FLWRKENV, FLWRKSTG, FLWRK*) are made on this Primary site.
- All definitions are sent automatically (via the FLSNDBASE command) to all secondary sites.
- It is no longer possible to manage definitions on secondary sites. Only the visualization of the definitions is possible on a secondary site.
- Historical data is available on the secondary sites, and automatically sent to the primary site, where it is visible.
- The new FLDSPHSTP command allows to have a summary of the current cloning on all secondary partitions.

All sites (primary, secondary and standard) remain autonomous to use cloning commands (FLCLONE, FLSTR*, FLEND*) and FLDSP* visualization commands.

If this module is not used, the product is configured in "Standard" mode on all partitions.

12.5 New module: Partition Reconfiguration

New optional module, requiring an additional activation key.

Flash for i is used historically to perform backups on a clone partition. But more and more, clone partitions are being used for other functions than backups, such as testing, pre-production, or training.
In these cases, it is necessary to modify the configuration of the partition to differentiate it from Production.

This new module allows the modification of a large part of the system elements to be handled automatically, without the need to write programs.
- IP Addresses, Domain Name, DNS
- Database names (RDBDIRE)
- System values for IPL
- OUTQ and JOBQ exhaustion
- Automatic restoration of specific user profiles, libraries or directories

12.6 Compatibility with new disk arrays

The list of supported disk arrays compatible with Flash for i is growing.
- IBM SVC
- IBM FlashSystem and Storwize
- IBM DS8xxx
- DELL / EMC VMAX

- Pure Storage

Other types and brands of disk arryas will be supported in the future.

12.7 New module: Sending emails

New optional module, requiring an additional activation key.

This module has been partially pre-delivered in version 3.
It allows to send an email to a maximum of 10 recipients.
- When an error is detected by the product (Type ERR in the FLDSPLOG command).
- When the status of a cloning changes.
The list of statuses that generate an email is configurable.
This option allows for example to have a confirmation that the cloning has been done and that the backup is finished.
The new commands FLWRKDST and FLWRKMAIL allow to configure this module.

12.8 New status *BRMS_TFR

For *BRMS and *BRMS21 environments, the *BRMS_TFR status has been added to indicate the transfer phase of the BRMS history (QUSRBRM library). The succession of statuses of a Clone partition thus becomes:
- *BRMS = Beginning of the backup with BRMS
- *BRMS_TFR = Backup complete, start backup and transfer of QUSRBRM
- *BRMS_END = Restoration of QUSRBRM completed. End of operations
This additional state helps to clarify the steps and solves a problem of inconsistency between the receipt of the library and the end state that occurred a few times.

In the FLDSPSTS command (or FLDSPHST option 5), the time of transition to this state is displayed.

12.9 Support of product 5733-ICC IBM Cloud Storage Solutions for i

The 5733-ICC IBM Cloud Storage Solutions for I product is supported by Flash for i.
This product associated with BRMS allows you to export volumes to the Cloud, or to an FTP server.
The QUSRICC library containing data from this product will be automatically transferred to the source partition at the same time as QUSRBRM.

12.10 Documentation: New Chapter dedicated to BRMS

The new chapter 2.11 of the documentation contains information specific to BRMS.

12.11 Three new check commands

The new FLCHKSTG and FLCHKLPAR commands allow you to check that communication with the disk array or HMC is working properly, using the definitions entered with the FLWRKSTG and FLWRKLPAR commands.
They facilitate configuration, or analysis in the event of a problem.
The new FLCHKCTLSB command allows to check that there is no error in the system value QCTLSBSD on the production partition. It is automatically launched every hour in FLASH4I subsystem.

12.12 Possible restricted mode for a *SAVE type environment

It is now possible to put the Clone partition in restricted mode with a *SAVE type environment.

13 Detail of new features on 02/09/2020

Version of the documentation = 3.07

13.1 Corrections and new features for DELL/EMC VMAX integration

Fixed malfunctions when configuring VMAX disk arrays in http/https.
Added the possibility to enter a second IP address.
Generated logs are kept and purged once a week.
In case of error, messages received from VMAX are copied to the Joblog.

13.2 IPL at the end of a *USER type environment

Perform IPL of the Clone partition at the end of the implementation of a *USER type environment if this option was requested.

13.3 Switching to restricted mode before SAVE21

In some cases (on very fast P9), the SAVE21 or BRMS21 backup was started before the system was in restricted mode. This is fixed.

14 Detail of new features on 19/07/2020

Version of the documentation = 3.07

14.1 Bug fixed for restricted mode

The program checking that the Clone partition is in restricted mode brought in the 12/05/2020 release had an error. This one is fixed.

14.2 Improving product upgrades

When upgrading the product, wait until the FLASH4I subsystem has actually shut down before starting to restore the new objects.
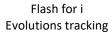
15 Detail of new features on 10/07/2020

New version of the documentation = 3.07

15.1 Improved operation with EMC VMAX

Several improvements have been made for EMC VMAX.
-   Added the optional -force parameter when creating the Snapshot.
-   When FLENDFC is used, an Unlink is made taking into account all generations of Snapshot, instead of generation 0 only.
-   Support for Snapshot with more than 100 LUNs

15.2 Bug fixed in FLCHGTIM command

The message resulting from the FLCHGTIM command did not indicate the correct time.

16 Detail of new features on 12/05/2020

New version of the documentation = 3.07

16.1 New required PTF

Some system PTFs are required.
Refer to the documentation in chapter 3.2.6 for details.

16.2 Now possible to use EMC VMAX disk bays, in http/https

It is now possible to use Flash for i in an infrastructure including DELL/EMC VMAX bays, by connecting in http or https and without the need for programming.
Snapshots are started by the standard product commands.

16.3 New FLTSTHTTP command to test an http/https connection

This new command allows to test an access to the VMAX bay using the REST APIs.

16.4 Improving product upgrades

When upgrading the product, using the FLRSTPRD command, a check that all objects are available is performed before starting the operation. The aim is to avoid errors during an upgrade because of tables used.

16.5 Bugfix in case of *SAVE21

In *SAVE21 environments, in rare cases, the product may not detect that the clone partition is in restricted mode, and cause an IPL without performing a backup. This is fixed.

17 Detail of new features on 05/03/2020

New version of the documentation = 3.06

17.1 New Module: Move HMC Resource

New commands allow to move physical locations from one partition to another.
These commands can be useful, for example, for configurations with a single SAS card to which an LTO drive is connected, and which must be moved from one partition to another automatically.

17.2 New chapter with the system prerequisites PTFs

Some functions require IBM system PTFs to be installed.

Refer to paragraph 3.2.6 on this subject.

17.3 List of BRMS control groups in environment entry

When working with environments, it is now possible to obtain a list of BRMS control groups.

17.4 History cleaning possible at 1 day instead of 10 days

The FLCLEAR command now allows to purge histories older than 1 day, instead of 10 days before.

17.5 Correction of minor bugs

Fixed a bug in the FLENDFC command, which occurred when using the *STG parameter.
Fixed a bug in the FLRTVSTS command if the environment did not exist.

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18 Detail of new features on 23/12/2019

New version of the documentation = 3.05

18.1 New optional module: Send emails in case of error

Added a new optional module, requiring an additional activation key.
This module allows to send an email to a maximum of 10 recipients when an error is detected by the product
(Type ERR in the FLDSPLOG command).

18.2 New command FLCHGTIM: Change time of Clone partition

The new FLCHGTIM command allows you to change the time of the Clone partition automatically to:
-    At the same time as the Production partition
-    With a time difference from the Production partition
-    At a fixed time

18.3 Allow to define up to 18 iASP in an environment

The previous limit was 12

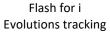## 18.4 Allow multiple volume names for a *SAVE21

For an environment of type *SAVE21, it is now possible to call an exit program that will return between 1 and 5
volume names (instead of one previously).
An example program EXAMPLE01B is provided.

18.5 Improving system history extraction

Searching for system history messages could be very time consuming if there are a lot of QHST files.
This feature has been improved.

18.6 FLCHKSSH, New type *DS8_CONN

The CTLTYPE parameter of the FLCHKSSH command accepts the new value *DS8_CONN to check the connection to a DS8xxx bay.

18.7 FLWRKSTG, Added user profile name if *DS8000

Added user profile name in the definition of a storage type *DS8000

18.8 Sending all error messages for *DS8000

In case of an error when starting FlashCopy for *DS8000 storage type, all messages returned by the array are read and returned to the product log (instead of the first message only before)

18.9 TCP/IP startup messages for a *SAVE21 type environment,

In some cases, after switching to restricted mode, TCP/IP did not start, which added a number of error messages (Status Transfer Error) if the "Real-time Log Transfer" option was set to '*YES'.
This has been fixed.

18.10 FLCLONE, parameter WAITEND becomes an additional parameter

This parameter, very rarely used, becomes an additional parameter. It no longer appears as soon as the prompt for this command is requested. You have to do F10 to see it.

19 Detail of new features on 10/10/2019

New version of the documentation = 3.04

19.1 Clean up internal data before to upgrade to version 3

Before to upgrade product Flash for I from V2 to V3, it is advised to clean up the internal data.
Use command FLCLEAR (using default values or changing them according to customer needs).
This note has been added because in the first releases of version 2, the clean up of internal data were not automatically done by the product. Some tables could have a very big size. The time for upgrade could be very long in this case.

19.2 New FLCPYDIR command

The FLCPYOBJ command is used to transfer objects or libraries from the Clone partition to the production partition.
The new FLCPYDIR command is used to transfer files or directories from the IFS.

19.3 Considering the "Login message" in the Storwises

The new version of the storwises allows to add a Login message. This message is displayed during each access to the bay functions, and disrupted the commands triggered by Flash for i.

This new message has been taken into account.

19.4 Fix display in 80-character mode for FLDSPLOG and FLDSPSLOG

On an 80-character session, the message text was not displayed.
It is still advisable to use a 132-character session for better use of the product on all sessions other than the console.

19.5 Fix move to status *ENDFC for *SPECIF storage type

When a storage is defined as µSPECIF, the automatic ending of FlashCopy or Snapshot was not correct.
This point has been fixed.

19.6 Job FL_AUTO failed with message "Too many files open"

In rare cases, the job FL_AUTO failed with message "Too many files open"
This point has been fixed.

19.7 Error FLA0683 for Ethernet lines *AGG type

If there is an *AGG (Aggregate) type Ethernet line, a FLA0683 error message was generated on the Clone when the line resources were modified.
This point has been fixed.

20 Detail of new features on 01/07/2019

New version of the documentation = 3.03

20.1 Vary on *TAP and *TAPMLB only if « On line at IPL »

Automatic Vary on of *TAP and *TAPMLB units changed:
During the first IPL of Clone partition, the tape and tape libraries units are now automatically varied on if the parameter "On line at IPL" is *YES.

20.2 FlashCopy not ended at the end of the Backup

For the environments where the clone partition or the FlashCopy must be automatically ended (*END_LPAR or *END_FC) at the end of the backup, in some cases, the stop didn't occur.
This mostly happened when the subsystem FLASH4I had been stopped for a few minutes.

20.3 Extraction JRNRCV changed if *BRMS or *SAVE

For a *SAVE or *BRMS backup, the extraction of *JRNRCV information was done after the status was changed to *SAVE_END or *BRMS_END.
If the extraction was running for a long time, and the partition or the FlashCopy had to be stopped (*END_LPAR or *END_FC), then that information was never sent back to the Production partition.

20.4 Explicit message during installation if the user profile has not enough rights.

When installing the product with command FLRSTPRD, an error message is sent if the user profile used has not every special authority to create profile FL_USER.

20.5 In some cases, the resource of Tape libraries was not correctly changed

20.6 F4 was not operational anymore after an upgrade of the product

21 Detail of new features on 12/04/2019

New version of the documentation = 3.02

21.1 Vary On *TAP and *TAPMLB

During the first IPL of Clone partition, the tape and tape libraries units are now automatically varied on.

21.2 Error message in case of problem when calling an Exit Program

If there is an error when calling an Exit program (error in the program, or missing parameter), a message is added in the product log.

21.3 Directory /tmp/brms transferred

In the case of *BRMS or *BRMS21 backup type, the directory /tmp/brms is transferred to the production partition the same time than QUSRBRM library. This directory contains data that IBM support could ask in case of incident.

21.4 Support of 80 colons screens.

Some commands could only be used with 132 colons sessions. This was a potential problem when only the console was available.
Every command can now be used on 80 colons sessions. In this case, there are fewer data displayed than with 132 colons sessions.

21.5 More information returned by command FLRTVSTS

Several new parameters added to command FLRTVSTS.

21.6 Several minor bugs fixed

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22 Version 3. Detail of new features on 19/02/2019

New version of the product = V03
New version of the documentation = 3.01

22.1 New version of the product : V03

New version of the documentation: 3.01
If the product is installed in version 1, look at the specific memo before to migrate it.
If the product is installed in version 2, there are no special instructions to migrate to version 3.

22.2 Possible to start several partitions at the same time

The version 3 of the product allows to start several partitions at the same time, and shows the status of every clone partition, including information coming from the clone partitions.
Several additional statuses have been added to know how clones are running.
With version 2, it was already possible to define and start several partitions, at the same time, but it was not easy to get their status individually.

22.3 New exit programs

The new version allows to define 9 user exit programs that will be called at important steps of the cloning process. Version 2 had only 3 exit programs.

22.4 Possible to define other disk bays

It's now possible to use Flash for I with IBM Storwize, SVC and DS8000. It's also possible to use specific programs to start and stop the Flashcopy or the snapshot on other bays

22.5 Several license keys available

It's now possible to enter up to 6 license keys for Flash for i product. This allows for example, on a production partition, to enter the license key of the local production partition, and another key for a DRP partition.
During a switch over to the DRP partition, it's not necessary to enter the new license key.
The first validated key (within a maximum of 6 keys entered) is used.
Use the commands FLADDKEY and FLWRKKEY to manage those keys.

22.6 Only one IPL on clone partition, and stop QSYSWRK

When the clone partition starts for the first time, the backup will start directly without to need a second technical IPL, except if the system name has to be changed.

In addition, the subsystem QSYSWRK is now stopped on clone partition during the backup.

22.7 Backup date of *JRNRCV

As the backup is done on another partition than the production, the backup date and time are not updated on the objects. The consequence is that automatic cleanup for journal receivers doesn't work.
Flash for i has now a function that updates the backup date/time of journal receivers on production partition.

22.8 Real time messages on production when SAVE21

When a backup (or any other operation) is done on the Clone partition, many information are automatically transferred in real time to the production (internal log, system log, job log, …).
Flash for i now allows this real time transfer when the clone partition is in restricted mode. For example during a SAVE21 (with or without BRMS).

22.9 New option *BRMS21

Option *SAVE21 can be used to backup the full system on the clone partition with the exact same configuration as the production partition (system values, control subsystem, IP configuration, …). The customization of the clone partition prior to start TCP/IP and send information to the production are done only at the end of the backup.
Version 3 has now an option *BRMS21 that does the same with BRMS.
Like with *SAVE21, *BRMS21 has an option to transfer messages in real time.

22.10 Option to initialize the tape with option *SAVE21

With the function *SAVE21, there is now a parameter to choose if the tape must be initialized.

22.11 New menus

The menus have been changed for a better daily use of the product, and to integrate the new commands.
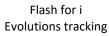
22.12 New look for commands FLDSPHST and FLDSPSTS

Command FLDSPHST (display history of cloning) display more information about every cloning, and becomes a central display for managing the product.

22.13 Environment definition upgraded

2 new commands FLWRKSTG and FLWRKLPAR have been added to define the storage and clone partitions.
Those definitions can be used in the Environment definitions.
During the upgrade of Flash for I to version 3, the existing configurations are automatically converted.

22.14   Command FLCPYOBJ changed to transfer a library.

FLCPYOBJ command can be used to transfer a file or a Data area to the Production.
With version 3, it can be used to transfer other objects types, or a full library.

22.15   Improved log display

The commands that display logs (FLDSPLOG and FLDSPSLOG) now show the detail of messages (level 2).
Every message is also displayed with the type of partition where it has been generated (Prod or Clone)
It's now possible to select the messages that have been created for a specific cloning number.

22.16   Action type *STRUP renamed to *SAVE

In an environment definition, the action type *STRUP has been renamed to *SAVE. This is only a new name to better match with the action that is performed.

22.17   New action type *USER

This new action type can be used to define a clone partition that will be used for another purpose than backup. It will be easier to define a clone partition that will become autonomous, to realize tests or BI for example. This new partition will no longer be linked to the original partition, and may possibly be used to create new clones using the Flash for i product.

22.18   New commands FLCHGROL and FLRSTCFG

Those 2 new commands do the following:
FLCHGROL: Change the role of a clone partition to Production, autonomous and independent from the original production it has been created from. This partition may possibly be used to create new clones using the Flash for i product.
FLRSTCFG: Restore the configuration as it was on the original Prod partition (system values, start TCP/IP, JOBSCDE, ...)

22.19   Security backup of Flash for I configuration before upgrade

FLRSTPRD command, used to upgrade the product to new version, has a parameter asking if a security backup of the library FLASH4I must be done before.
Selecting the main language to install is now necessary.

22.20   New example sources delivered

The source file FLASH4I/FLEXAMPLES contains 5 examples of programs.
EXAMPLE_01 CLP   Example, Give Volume name for *SAVE21
EXAMPLE_02 CLP   Example, Backup program for *SAVE function
EXAMPLE_03 CLP   Example, Exit pgm 3: First IPL on Clone
EXAMPLE_04 CLP   Example, Enable access to partition for 5250
EXAMPLE_05 CLP   Example, *SPECIF Storage program